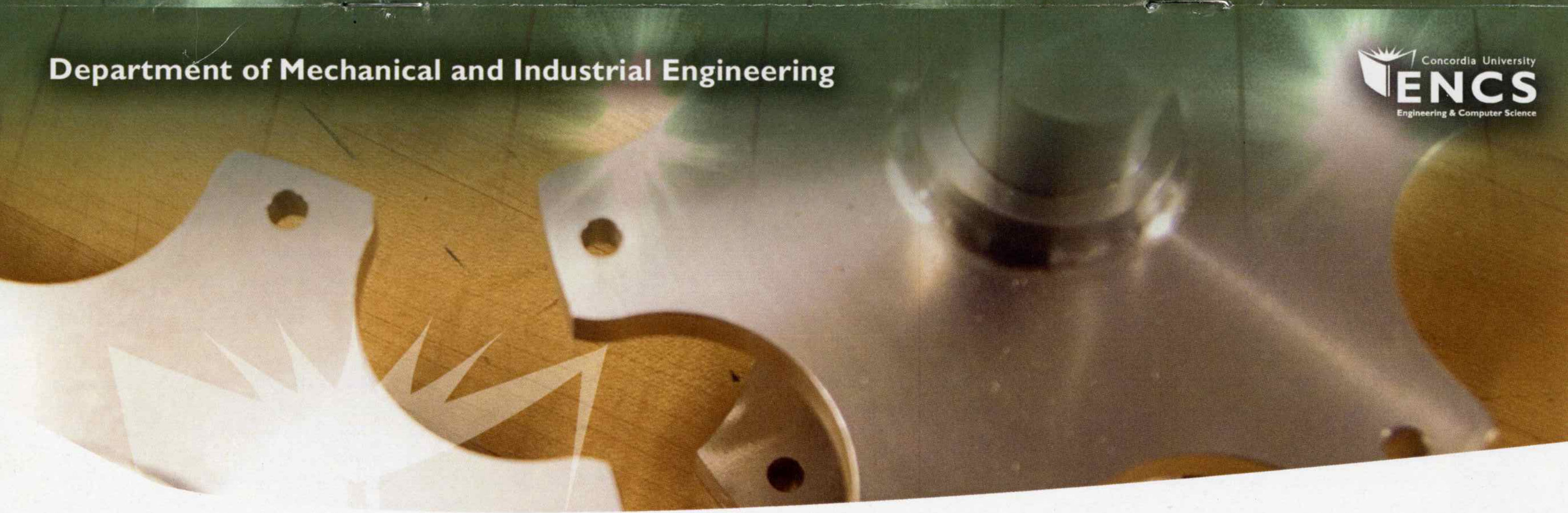

Department of Mechanical and Industrial Engineering

Concordia University
ENCS
Engineering & Computer Science

Université
Concordia
University

PROGRAM:

MECHANICAL ENGINEERING

What is Mechanical Engineering?

Mechanical engineering is a diverse field covering the design, control and manufacturing of mechanical and electro-mechanical devices and the generation and transformation of energy from hydro-electric to steam, internal combustion, nuclear, jet rockets, and fuel cells.

Mechanical engineers research and develop new materials, processes, and techniques in a wide spectrum of fields such as automotive, heavy equipment and aerospace. They can specialize in areas such as: internal combustion, jet engine design, stress and vibration analysis, control engineering, production engineering, composites, materials handling, measurements, heating, ventilation and air-conditioning; as well as the application of computers in all aspects of design and manufacturing used to produce higher quality products at a lower cost to the consumer by environmentally-friendly means.

Why Choose Mechanical Engineering at Concordia?

Our programs have secured a leading position among the mechanical engineering departments in North America. The undergraduate curriculum emphasizes design and project-based labs in addition to traditional academic components: lectures, tutorials, and course work. Final year courses comprise relevant projects requiring student capabilities in analysis and experimentation which gives the students experience in industry practices. Our program couples fundamental engineering science with practical design thereby giving students the broad skills they need to realize their goals. It also allows students to obtain further specialization in a particular area of their field of interest.

Currently four (4) options are available:

- Thermo Fluid and Propulsion;
- Design and Manufacturing;
- Mechatronics and Controls and;
- Aerospace and Vehicle Systems.

The Thermo Fluid and Propulsion option prepares students for a career in the fields of aerospace, power generation, energy transfer and control, environment, and fluids. The Design and Manufacturing option focuses on providing a career in the R&D, design, manufacturing and maintenance of machinery. The Mechatronics and Controls option provides the theoretical and practical knowledge necessary for students to pursue a career in industrial automation and control. The Aerospace and Vehicle Systems option prepares the students to pursue a career in the design of aerospace systems such as flight controls and also in vehicle systems such as steering and suspension.

Our program is accredited by the Canadian Engineering Accreditation Board and our graduates are eligible to become registered professional engineers.

MECHANICAL ENGINEERING

Companies That Hire Concordia Mechanical Engineering Graduates

Once graduated from our program, you will be ready for a career in many areas such as: computer aided design and manufacturing (CAD/CAM), aerospace, power generation, vehicle design, mechatronics and controls.

Our graduates find jobs at many well established companies in Montreal, Ottawa, Toronto and elsewhere, such as:

- Pratt & Whitney Canada
- Bombardier Aerospace
- Rolls Royce Canada
- Bell Helicopter
- CAE Electronics
- General Motors
- Spar Aerospace
- General Electric
- Air Canada
- Transport Canada
- Bendix-Avelex
- CDI Aerospace
- C&D Aerospace
- ComDev
- IMP Aerospace
- Canadian Space Agency
- National Research Council
- Natural Resources Canada
- Aesus Systems
- AirScience Technologies
- Alcan Inc.
- Canada Green Technologies
- Atlantic Aluminum Ltd.
- Medical International Technologies
- HTS Engineering
- Matrox Electronic Systems
- Racan Carrier
- SKF Canada Ltd.
- Torr Canada Ltd.
- IBM Canada Ltd.
- Silgan Plastics Canada Inc.
- Reebok-CCM
- Dassault Systèmes Inc.
- Ivaco Rolling Mills

The Mechanical Engineering Co-op Program

The Co-op Program in Mechanical Engineering formally integrates a student's academic studies with work experience in a co-operative industrial organization. The program consists of study and work terms. Students undertake full-time jobs during the work terms in appropriate external organizations, thereby complementing their academic knowledge acquired in the classroom.

For more information about Mechanical Engineering Co-op Program, please visit : ***coop.concordia.ca/programs/engcompsci/mechanical.shtml***

The Program Structure

The B.Eng in Mechanical Engineering is a 120-credit program which requires four years of full-time study after CEGEP. Courses in this program are a combination of engineering core, mechanical engineering core and technical electives:

The "engineering core" (30.5 credits) includes engineering fundamentals such as engineering mathematics, probability and statistics in engineering, engineering management and economics, health and safety and professional practice.

The "mechanical engineering core" (74.25 credits) includes the fundamentals of mechanical engineering such as statics and dynamics, mechanics of materials, thermodynamics, fluid mechanics, materials science, manufacturing processes, theory of machines, fundamentals of control systems, machine drawing and mechanical engineering design.

Engineering Core (30.5 Credits)

ELEC 275	Principles of Electrical Engineering
ENCS 282	Technical Writing and Communication
ENGR 201	Professional Practice and Responsibility
ENGR 202	Sustainable Development and Environmental Stewardship
ENGR 213	Applied Ordinary Differential Equations
ENGR 233	Applied Advanced Calculus
ENGR 301	Engineering Management Principles and Economics
ENGR 371	Probability and Statistics in Engineering
ENGR 391	Numerical Methods in Engineering
ENGR 392	Impact of Technology on Society

Mechanical Engineering Core (73.25 Credits)

ENGR 242	Statics
ENGR 243	Dynamics
ENGR 244	Mechanics of Materials
ENGR 251	Thermodynamics I
ENGR 311	Transform Calculus and Partial Differential Equations
ENGR 361	Fluid Mechanics I
MECH 211	Mechanical Engineering Drawing
MECH 215	Programming for Mechanical and Industrial Engineers
MECH 221	Materials Science
MECH 311	Manufacturing Processes
MECH 313	Machine Drawing and Design
MECH 321	Properties and Failure of Materials
MECH 343	Theory of Machines I
MECH 344	Machine Element Design
MECH 351	Thermodynamics II
MECH 352	Heat Transfer I
MECH 361	Fluid Mechanics II
MECH 370	Modeling, Simulation and Control Systems
MECH 371	Analysis and Design of Control Systems
MECH 373	Instrumentation and Measurements
MECH 390	Mechanical Engineering Design Project
MECH 443	Mechanical Vibrations

Technical Electives (16.25 credits)

The "technical electives" must be chosen from within one of the following options:

- Option A: Thermo Fluid and Propulsion
- Option B: Design and Manufacturing
- Option C: Mechatronics and Controls
- Option D: Aerospace and Vehicle Systems

Including Mech 490 Capstone Mechanical Engineering Design Project in all options.

Consult the Course Calendar
http://registrar.concordia.ca/calendar/pdf/sec71.40.pdf

For more information

Dr. Martin Pugh, Chair
pugh@encs.concordia.ca

Dr. Kudret Demirli, Associate Chair
demirli@encs.concordia.ca

Dr. Henry Hong, Undergraduate Program Director
henry.hong@concordia.ca

Dr. Ali Akgunduz, Co-op Program Director
akgunduz@encs.concordia.ca

Sabrina Poirier, Undergraduate Program Assistant
sabrina@encs.concordia.ca

Student Academic Services

Tel: 514-848-2424 ext. 3055

Mechanical and Industrial Engineering Website

www.mie.concordia.ca

Hours of Operation

SGW Campus Monday to Friday, 9 a.m. - 5 p.m.

Civic Address

Department of Mechanical and Industrial Engineering
1515 St. Catherine Street West, EV 4-139
Tel.: 514-848-2424 ext. 3125 • Fax: 514-848-3175

MECHANICAL ENGINEERING

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